REMARKS

Status of the Claims

Claims 27-46 and 57-65 are pending in the present application, Claims 1-26, 47-56, and 63 having been previously canceled, and new Claims 64-65 having been added herein. Claims 27, 39, 43, 46 and 57 have been amended to more clearly define the recited subject matter.

Claims Rejected Under 35 U.S.C. § 102(b)

Claims 27, 28, 32, 33, 35-40, 42-57, 59 and 61-62 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,859,375 (Danylewych-May et al. - hereinafter referred to as "Danylewych-May").

Applicants have amended the independent claims, which distinguish over the cited art as discussed below.

In the interest of reducing the complexity of the issues for the Examiner to consider in this response, the following discussion focuses on independent Claims 27, 39, and 57.

The patentability of each remaining dependent claim is not necessarily separately addressed in detail. However, applicants' decision not to discuss the differences between the cited art and each dependent claim should not be considered as an admission that applicants concur with the Examiner's conclusion that these dependent claims are not patentable over the disclosure in the cited references. Similarly, applicants' decision not to discuss differences between the prior art and every claim element, or every comment made by the Examiner, should not be considered as an admission that applicants concur with the Examiner's interpretation and assertions regarding those claims. Indeed, applicants believe that all of the dependent claims patentably distinguish over the references cited. In any event, a specific traverse of the rejection of each dependent claim is not required, since dependent claims are patentable for at least the same reasons as the independent claims from which the dependent claims ultimately depend.

Patentability of Independent Claim 27 over Danylewych-May

Applicants respectfully submit that the cited art does not teach or suggest the following elements:

An analyzer that analyzes sample particles while the sample particles are retained on the collection surface and the collection surface remains in the device; and

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A mechanical homing sensor that is part of the device, where the homing sensor moves the collection surface relative to other parts of the device, and the movement occurs cyclically and automatically.

The cited art does NOT teach an analyzer that is configured to analyze the *particles while the particles are retained on the collection surface,* and the *collection surface remains in the device.* In contrast, Danylewych-May teaches an IMS analyzer configured to analyze the particles ***after*** the particles have been removed from the collection surface, as disclosed in col. 6, lines 35-43. More specifically, this portion of the cited references states that a vaporized sample passes through the entry port of the IMS analyzer and into the analyzer for analysis. Thus, because the sample has been vaporized and is in a gaseous form, this type of analyzer cannot read on the fourth subparagraph of Claim 27, because analysis is not taking place while the particles are retained on the collection surface. In addition, applicants note that Danylewych-May discloses:

> This invention relates to the collection from surfaces of samples of trace particles or liquids, or other compounds for chemical detection by various analytical means, such as an ion mobility spectrometer (IMS), gas chromatography (GC), liquid chromatography (LC), mass spectrometry (MS) and other methods, the compounds being present either as traces within particles or as discrete particles or aerosols, droplets or the like. (Emphasis added, Danylewych-May, col. 1, lines 6-12.)

As highlighted above in the underlined portion, please note that IMS, GC, LC and MS each represent detection technologies that require the sample to be removed from the collection surface prior to the analysis (i.e., the analysis takes place once the particles are removed from the collection surface). Danylewych-May does suggest other types of analytical components (see col. 9, lines 2-9), however, those additional analytical components (gas chromatographs, chemi-luminescent detectors, and mass spectrometers) also require a sample to be removed from a collection surface for analysis. Applicants respectfully submit that Danylewych-May does not teach or suggest any detection technology where the analysis is while the particles remain disposed on the collection surface, and the collection surface remains in the device.

Applicants' detection technology collects light from the particles while the particles remain on the collection surface. In one embodiment, the sample particles are illuminated using light that can cause biological particles to emit fluorescence, and the detector responds to such fluorescence to identify the presence of a biological material.

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Furthermore, the cited art does NOT teach a mechanical homing sensor that *automatically* moves the collection surface relative to the nozzle, analyzer and surface regenerator. The Examiner has argued that the handle of Danylewych-May's hand held sampling apparatus is a homing sensor.

Respectfully, applicants have claimed a **single device** that includes a spotting nozzle, a collection surface, an analyzer, a surface regenerator, and a mechanical homing sensor that moves the collection surface relative to the analyzer, the surface regenerator, and the spotting nozzle. Danylewych-May simply does not disclose *any single device* that includes those elements, thus Danylewych-May simply is not prima facie prior art upon which a rejection under 35 U.S.C. § 102(b) can be based.

With respect to whether it would have been obvious to modify the multiple individual devices disclosed by Danylewych-May to achieve an equivalent single device, please consider the following.

Danylewych-May does disclose a sampling component that includes a collection surface and a nozzle. The nozzle disclosed by Danylewych-May is not equivalent to the spotting nozzle as amended (applicants' spotting nozzle is configured such that air moves through the spotting nozzle before passing over the collection surface, while Danylewych-May discloses a nozzle disposed distal of the collection surface, such that air passes over the collection surface before entering the nozzle).

Danylewych-May does disclose that the collection surface in the sampling component can be cleaned and reused; however, the sampling component itself does not include a surface regenerator.

Danylewych-May does disclose an analyzer; however, the analyzer is not part of the sampling component, and the analyzers disclosed require removal of the sample from the collection surface (i.e., the analyzers require liquid or gas phase samples).

Danylewych-May does disclose that a user (i.e., a person) moves the sampling component so that the collection surface is proximate an item to be sampled, that the user moves the collection surface to the analyzer for analysis, and that the user employs some sort of surface regenerator to clean the collection surface. However, a user is not a mechanical homing sensor. A handle is not a mechanical homing sensor, as the handle is not moving the collection surface, a person is. Danylewych-May does not disclose any mechanical structure that automatically and cyclically moves the collection surface relative to the spotting nozzle, the analyzer, and the surface regenerator.

To achieve an equivalent device, the devices disclosed by Danylewych-May need to be modified as follows:

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Multiple devices would need to be combined into a single device.

The nozzle disclosed by Danylewych-May would need to be modified such that air passes through the nozzle before the air passes over the collection surface.

The analyzer disclosed by Danylewych-May would need to be modified such that the sample is analyzed while on the collection surface.

A mechanical homing sensor (such as the cam, shaft and prime mover disclosed by applicant) would need to be incorporated into the single device to automatically control motion provided by a person in Danylewych-May's technology.

Those modifications appear to be motivated by hindsight, rather than reasonable modifications that an artisan of skill would obviously have been lead to improve Danylewych-May's technology.

Significantly, Danylewych-May's technology is directed to sampling controlled by a person, in the context of screening luggage, or testing for the presence of chemical warfare agents. Applicants' technology is directed to an automated sampler that does not require direct human control. The technologies perform related, but different functions, and the modifications required to Danylewych-May's to achieve an equivalent do not appear to be obvious, absent hindsight.

Note applicants have amended Claim 27 to recite that the homing sensor is mechanical and automatic, so that manual intervention is not necessary. Support for this amendment is found in paragraphs 0283 and 0287 of the published application. In an effort to advance prosecution, applicants would also like to briefly comment that it would not be obvious to modify Danylewych-May to automate the separate components that the Examiner asserts read on applicants' recited elements, such as the collection surface that is moved relative to a nozzle, analyzer and surface regenerator, because it would require major structural changes to the embodiments presented, and it is clear from the description that these embodiments were clearly never intended to incorporate such components into a single device.

Accordingly, the rejection of independent Claim 27 under 35 U.S.C. § 102(b) should be withdrawn.

Since dependent claims inherently include all of the recitation of the independent claims from which they ultimately depend, for at least the same reasons as noted above in connection with

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independent Claim 27, the rejection of dependent Claims 28, 32, 33 and 35-38 should also be withdrawn.

Patentability of Dependent Claim 38 over Danylewych-May

Claim 38 recites a device that must include the following:

the impaction plate is a lobed cam having a shaft, the impaction plate comprises at least one planar collection surface substantially parallel to the shaft, and the homing sensor comprises the shaft.

Danylewych-May simply does not teach or suggest any combination of lobed cam and shaft associated with the impaction plate, and the rejection of Claim 38 as being anticipated by Danylewych-May is improper and should be withdrawn.

Patentability of Independent Claim 39 over Danylewych-May

Claim 39 recites a device that must include the following:

means for analyzing the particles while the particles are retained on the collection surface and without removing the collection surface from the device,

means for regenerating the collection surface without removing the collection surface from the device; and

means for translocating the collection surface relative to the nozzle, the analyzer, and the surface regenerator.

As discussed above, the cited art does not teach or suggest means for analyzing *while the particles are retained on the collection surface and without removing the collection surface from the device.*

The cited art does not appear to teach or suggest *regenerating the collection surface without removing the collection surface from the device.*

Finally, a person moving a device simply is not equivalent to *means for translocating the collection surface relative to the nozzle, the analyzer, and the surface regenerator*, as a person cannot logically be part of a device. A handle, until manipulated by the person using the device disclosed in the cited art, does not provide any dislocation. Absent the person, the handle merely provides a support structure.

Note Claim 39 as amended recites that the collection surface is an integral part of the device, as shown for example, in FIGURE 26. This means that the collection surface is NOT removed from

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the device for regeneration, such as disclosed in Danylewych-May in col. 6, lines 50-64. Support for how the collection surface is regenerated without removing it from the device is disclosed in paragraphs 0276-0277.

Accordingly, the rejection of independent Claim 39 under 35 U.S.C. § 102(b) should be withdrawn. Dependent claims are inherently patentable for at least the same reasons as the claims from which they depend, thus the rejection of dependent Claims 40 and 42-46 should also be withdrawn.

Patentability of Dependent Claims 43 and 46 over Danylewych-May

Claims 43 and 46 as amended recite a prime mover configured to move a shaft to implement the homing sensor.

As noted above, the cited art employs a person to provide the motive force. The relationship of the prime mover to the homing sensor is disclosed in paragraph 0283 of the published application. Note that FIGURE 16 of the published application already shows a prime mover, and it would not appear necessary to add that element to Claim 26, as the element has already been shown performing an equivalent function (repositioning a collection surface relative to a nozzle).

Patentability of Independent Claim 57 over Danylewych-May

Claim 57 recites a device that must include the following:

an analyzer for examining the particles while the particles are retained on the collection surface and the impaction plate and collection surface remain in the device, and

a homing sensor, wherein the homing sensor is configured to ***automatically*** *and operatively position the collection surface relative to the nozzle, the analyzer, and the surface regenerator,* ***the homing sensor comprising a prime mover configured to provide a motive force to operatively position*** *the collection surface relative to the nozzle, the analyzer, and the surface regenerator.*

As discussed above, the cited art does NOT teach an analyzer for examining the particles *while the particles are retained on the collection surface and the impaction plate and collection surface remain in the device.*

Claim 57 as amended clarifies that the homing sensor is operated in an automatic manner in order to make it clear manual intervention is not necessary to position the collection surface relative to the nozzle, analyzer and the surface regenerator.

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Claim 57 as amended further recites that the homing sensor comprises a prime mover to provide the *motive force to operatively position the collection surface relative to the nozzle, the analyzer, and the surface regenerator.* As noted above, the cited art employs a person to provide the motive force. The relationship of the prime mover to the homing sensor is disclosed in paragraph 0283 of the published application. Note that FIGURE 16 of the published application already shows a prime mover, and it would not appear necessary to add that element to Claim 26, as the element has already been shown performing an equivalent function (repositioning a collection surface relative to a nozzle).

Finally, applicants notice that the sampling collecting device disclosed by Danylewych-May does not include a pre-analysis spot preparation station.

Accordingly, the rejection of independent Claim 57 under 35 U.S.C. § 102(b) should be withdrawn. Dependent claims are inherently patentable for at least the same reasons as the claims from which they depend, thus the rejection of dependent Claims 59 and 61-62 should also be withdrawn.

Claims Rejected Under 35 U.S.C. § 103(a) over Danylewych-May

Claims 29-31, 41, and 58 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Danylewych-May.

Claims 29-31 are dependent upon Claim 27, whose patentability over Danylewych-May has been discussed in detail above. Claims 29-31 are patentable for at least the same reasons.

Claim 41 is dependent upon Claim 39, whose patentability over Danylewych-May has been discussed in detail above. Claim 41 is patentable for at least the same reasons.

Claim 58 is dependent upon Claim 57, whose patentability over Danylewych-May has been discussed in detail above. Claim 58 is patentable for at least the same reasons.

Claims Rejected Under 35 U.S.C. § 103(a) over Danylewych-May in view of Beverly

Claim 34 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Danylewych-May in view of U.S. Patent No. 4,742,009 (Beverly et al. - hereinafter referred to as "Beverly"). Beverly discloses a roll of filter material, upon which a sample that might contain a radioactive material is collected as the filter paper moves past a nozzle. The filter material moves from the nozzle to a radiation detector that determines if the sample on the paper is radioactive.

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Claim 34 recites that the surface regenerator is a felt wheel. The Examiner appears to consider a roll of filter paper to be equivalent to a felt wheel.

Applicants have amended the surface regenerator recited in each independent claim to clarify that the surface regenerator *actually removes particles from the collection surface*. The roll of filter paper disclosed by Beverly functions as the collection surface. Even if one considers that moving the used collection surface so that a clean unused portion of the collection surface is a type of regeneration, applicants' claims specifically require that the previously collected particles be removed before a new sample is collected. Beverly does not function in an equivalent manner. At some point, the filter roll will be used up, and a new filter roll must be installed. Applicants' collection surface is configured to be used indefinitely, as particles are actually removed between successive sampling.

Clearly, the felt wheel of Claim 34 actually removes particles, as opposed to moving to present a clean portion of the surface for sampling. Thus the suggested combination of Danylewych-May and Beverly does not achieve an equivalent to that which applicants have claimed, and the rejection of Claim 34 should be withdrawn.

Patentability of New Claim 64

Claim 64 recites a device including:

a regenerable solid collection surface;

means for regenerating the regenerable solid collection surface by removing particles from the regenerable solid collection surface without removing the regenerable solid collection surface from the air sensor device, and

means for analyzing the particles on the regenerable solid collection surface without removing the regenerable solid collection surface from the device, to determine if the spot of immobilized airborne particles represents a biological threat.

Danylewych-May does not teach or suggest analyzing particles on a collection surface. Beverly tests for radioactivity without removing particles from the collection surface, but Claim 64 requires the analysis to determine if the sample represents a biological threat, not a radiological threat. Neither Beverly nor Danylewych-May disclose a sampling device that includes an element configured to remove particles from the collection surface to enable a new sample to be taken. Beverly simply uses a very long collection surface, while Danylewych-May teaches that disposable

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collection surfaces are used, or that substrates are re-used after being cleaned by thermal desorption (see column 6, lines 35-55), where the thermal desorption takes place in a separate device (the analytical device, which is not part of the sampling device).

The cited art does not teach a single device that includes a collection surface, an analyzing component that analyzes a sample on the collection surface to determine if the sample is a biological threat, and a regenerator that cleans the collection surface while it remains in the device to prepare the collection surface to receive another sample.

Patentability of New Claim 65

Claim 65 recites a method consistent with the structure of Claim 64, wherein:

a sample is collected on a regenerable solid collection surface;

the sample is analyzed while on the regenerable solid collection surface without removing the regenerable solid collection surface from the device, to determine if the sample represents a biological threat; and

the surface is regenerated by removing particles from the regenerable solid collection surface without removing the regenerable solid collection surface from the air sensor device.

Claim 65 distinguishes over the cited art for sustainably the same reasons as Claim 64, discussed immediately above.

Conclusion

In consideration of the amendment to the claims and the Remarks set forth above, it is applicants' position that all claims in the current application are patentable over the art of record. The Examiner is thus requested to pass this case to issue without further delay. In the event that any other issues remain, the Examiner is invited to telephone applicants' attorney at the number listed below.

Respectfully submitted,

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